

L and P Band MMIC T/R Module, Phase II

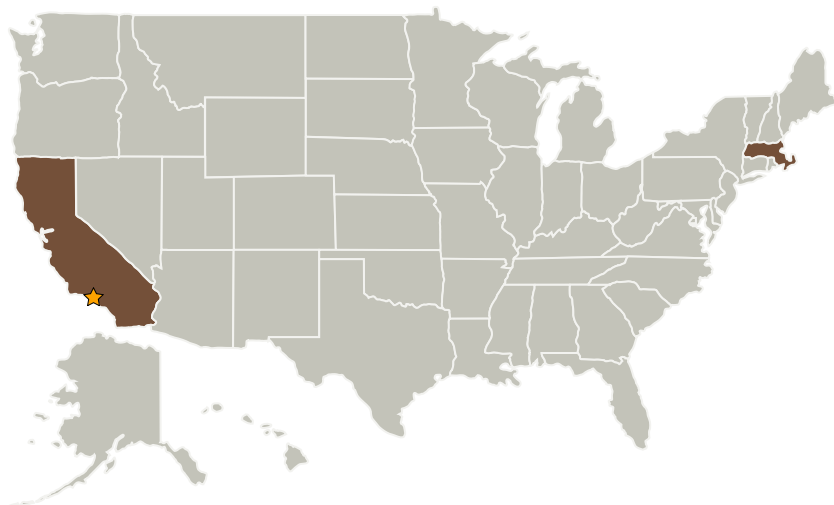
Completed Technology Project (2005 - 2007)



Project Introduction

This proposal is specifically written to address the need for improved L and P band T/R modules for use in active microwave surveillance of earth surface and atmosphere. The solicitation called for investigation and development of core technologies that will significantly improve T/R module performance. Improvements needed include reduced power consumption, mass, size and increased data rates. Hittite Microwave Corporation is a fabless semiconductor company that has been developing microwave monolithic integrated circuits (MMIC) for over 19 years. The T/R module circuit functions are diverse imposing several different process requirements. For example the key process specification for the LNA is the minimum noise figure (Fmin) of the process, for the control functions the switch cutoff frequency, and for the PA the power added efficiency. Hittite has focused on developing E/D PHEMT processes and simulations presented in this Phase II proposal are based on models from a new Triquint E/D PHEMT process. The E/D process is promising as a work horse process offering overall superior performance for LNAs, PAs, and control components. Hittite will use the Phase II program to design and develop and fabricate an efficient single chip T/R solution for the array application.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Hittite Microwave Corporation	Supporting Organization	Industry	Chelmsford, Massachusetts

Primary U.S. Work Locations

California	Massachusetts
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.2 Radio Frequency
 - └ TX05.2.7 Innovative RF Technologies